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(54) Title: EXPRESSION OF PHYTASE IN PLANTS AS A METHOD OF MODIFYING PLANT PRODUCTIVITY

(57) Abstract: The present invention provides a method of modifying plant productivity comprising expressing in a plant cell, tissue or organ one or more genes capable of facilitating a plant's ability to utilise soil phosphorus, and, in particular, a phytase gene, wherein said phytase gene expresses a phytase polypeptide in secretable form. More particularly, the present invention provides a method of increasing plant productivity comprising expressing in the root of a plant an isolated nucleic acid molecule encoding a phytase polypeptide for a time and under conditions sufficient for said phytase to be secreted from the root. In a preferred embodiment of the invention the chemistry of the soil around the root is modified by the application of an organic acid. The invention also provides novel phytase-encoding genes: genetic constructs which are useful for performing the inventive method; and transgenic plants produced therewith having improved productivity compared to their otherwise isogenic counterparts.

WO 01/22806 A1